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# RAPID GROWTH AND SOCIAL DISRUPTION: HEALTH AND WELL-BEING IN TEN COMMUNITIES

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## ABSTRACT

It has generally been assumed that rapid social change creates a great deal of personal and social description among the residents of communities that host large-scale developments. Results from a 1979 interview survey of a representative sample of 430 adult residents of Fort McMurray, Alberta are presented to examine this proposition. Fort McMurray residents' reports of their satisfaction, feelings and health related behaviours were compared to similar reports by residents of the larger city of Edmonton and residents of Canadian Forces Base, Cold Lake, and nearby small towns, villages and rural areas. Demographic, employment and other economic and social factors were examined to elaborate upon the differences observed.

Until very recently, when high financing costs and low product demand made large-scale resource development less attractive, the hinterland of both the U.S.A. and Canada was increasingly being developed by very large capital intensive projects (Murdock and Leistritz, 1979; Lucas, 1971). With larger and larger developments has come an increasing concern with possibly disruptive social impacts upon host communities. Much of the recent research on the social effects of these mega-projects, particularly energy related developments in the Eastern Slopes of the U.S. Rockies, has been initiated by government agencies newly legislatively charged with reviewing possible impacts of all sorts.

In Alberta, the Alberta Oil Sands Environmental Research Program, a joint Federal-Provincial program designed to direct and co-ordinate research concerned with environmental effects of development of the Athabasca Oil Sands, rather belatedly spent about 5% of its budget studying the humans involved. One of the largest of these studies was a retrospective survey of adult residents living in Fort McMurray (1979). At the same time, the Progressive Conservative Government of Peter Lougheed initiated a major social baseline study of the Cold Lake Region on the Alberta-Saskatchewan border, where Imperial Oil was expected to build a multi-billion dollar 150,000 BPD extraction and refining plant. Results of these two studies, supplemented by comparisons to similar 1981 surveys in Edmonton and Winnipeg, provide the material for a preliminary comparative examination of the social and psychological well-being of populations experiencing rapid change.

Conventional Wisdom

Most of the researchers who have investigated the effects of the

impact of rapid change have argued what can be termed a "social disruption" thesis (Wilkenson et al, 1982; Albrecht, 1982; Finsterbusch, 1982; Freudenberg, 1982; Gale, 1982; Gold, 1982; Murdock and Leistritz, 1982). The phenomena which this thesis purports to describe, particularly with reference to boom-towns, is sometimes referred to as the "Gillette Syndrome", after Gillette Wyoming (Kohrs, 1974; Gilmore, 1976). The social disruption thesis is simply the idea that rapid change creates social disruption and negatively influences psychological well-being. More specifically, rapid growth is held to produce crowding and excessive demands on public services (Kohrs, 1974; Gilmore, 1976). Distress may emanate from contrasting lifestyles of oldtimers and newcomers (Gold, 1974; 1976),and high crime rates and other social problems may be associated with transient populations (Kohrs, 1974; Freudenberg, 1976; Little, 1977). Rapid growth and high population turnover may alter local social interaction (Carnes and Friesema, 1974; Cortese and Jones, 1977), create breakdowns in informal social controls (Little, 1977), reduce neighbouring (Cortese and Jones, 1977), and exacerbate antagonisms in increasingly diverse populations (Albrecht, 1978). The impersonality and anomie which Emile Durkheim associated with rapid change (Wilkenson et al, 1982) is accompanied by domination and exploitation of local communities by outside interests (Albrecht, 1978; Massey, 1980). Large-scale rapid development is seen to create both problems and communities unable to deal with them.

The empirical status of these ideas has been very difficult to assess. Government and private companies initiated and supported much of the research, and this has lead to a high proportion of "fugitive" literature (Larson, 1979; Freudenberg, 1982; Gale, 1982). Many of the early research works have been cited again and again to document the disruption thesis, yet

they are seriously methodologically flawed(Wilkenson et al, 1982). Many investigations have been project oriented, descriptive case studies with severe time, budget and content limitations (Gale, 1982; Gold, 1982). Heavy reliance upon secondary, available data, clinical records, or knowledgeable informants may produce a distorted picture (Albrecht, 1982; Gartrell et al, 1980a). Many reports fail to demonstrate that the problems described are in any way attributable to the project itself or to rapid growth (Wilkenson et al, 1982; Albrecht, 1982). Much of the evidence is rather atheoretical, non-historical, and non-comparative. Investigators have not taken into account whether disruption was high before the development, and they have ignored the possibility that disruption may decrease rapidly after a construction phase has been completed. People in different communities may be equally happy and healthy in a variety of circumstances, and there are a large number of reasons for social and psychological problems.

The following presentation utilizes a comparison of a number of communities , some which have experienced very rapid change or high population instability, to look for an association between the kind of community and social and psychological states reported by their populations. Differences within communities often appear to be larger than differences between communities. Some of the observed differences in self reported symptoms, doctor visits, and other possible indicators of social or psychological disruption in the general population also appear to be a function of the different population composition of communities. Other differences which remain even when we standardize for sex, age, migration cohort and other factors, may indicate possible disruptive effects of rapid growth.

Research Methods

The present report compares respresentative samples of adults in 10 different populations as to their self-reports of health related symptoms, use of medical services (visits to the doctor), the incidence of stressful life events, smoking and drinking, psychological well-being (affect), and satisfaction with the quality of life. The principle comparison is between Fort McMurray residents who live in a community that has experienced extremely rapid growth rates and high turnover, and a variety of other populations. The social disruption thesis would predict that residents of high growth centres would report higher stress, more symptoms of ill health, greater use of medical services, higher rates of smoking and drinking, poorer psychological states, and lower satisfaction with their quality of life.

Before we turn to these results, let us briefly introduce the different communities that form the basis for the comparison. Both Winnipeg and Edmonton are provincial capitals. Winnipeg, the older city, has a somewhat smaller population that has been growing more slowly than has Edmonton's. In 1981, Winnipeg had an unemployment rate almost twice that of Edmonton's, and Edmonton's population enjoyed higher incomes. Its population was younger and included more newcomers. Samples from these cities were interviewed in the Edmonton Area Study (1981) which was that year replicated for Winnipeg and yielded sample sizes of 400 for Edmonton and 336 for Winnipeg.

Seven of the comparison populations were interviewed in the 1979 baseline study of the Cold Lake Region undertaken by Alberta Tourism and Small Business (Gartrell et al, 1980b). The whole region, including Canadian Forces Base, Cold Lake had a population of about 25,000. The two small Metis Settlements, Fishing Lake and Elizabeth, were surveyed early in 1980 with one adult from each household interviewed (N=91).

Both communities had a fairly old adult population (average age 42 years) with large households (averaging 4.9 people), a high proportion of unmarried residents (57% of the adults), low employment (only about 20% of the adult males were employed full time), poor housing (70% without running water, 50% without telephones), and low household incomes (less than $6,000 per year).

The three towns in the Cold Lake Region were quite different. Bonnyville about 250 Km East of Edmonton, had a population of about 4,000 and is a rural service centre for farming and tourism. Its population growth had slowed somewhat prior to the anticipatory pre-development increase that occurred in the several years prior to our survey. With a fairly high retirement population, incomes were low ($15,600 for 1978). Grand Centre, about 40 Km further from Edmonton, was created largely as a result of the establishment of CFB Cold Lake right next door in the 1950's. This ex-boom town had a higher growth rate and about the same size population as Bonnyville (4,000). The smallest of the three towns, Cold Lake, is only a few kilometres north of Grand Centre. It had a population of about 1,500 and had grown the more slowly of all three towns as well. Like Grand Centre, Cold Lake residents had fairly high incomes ($19,400).

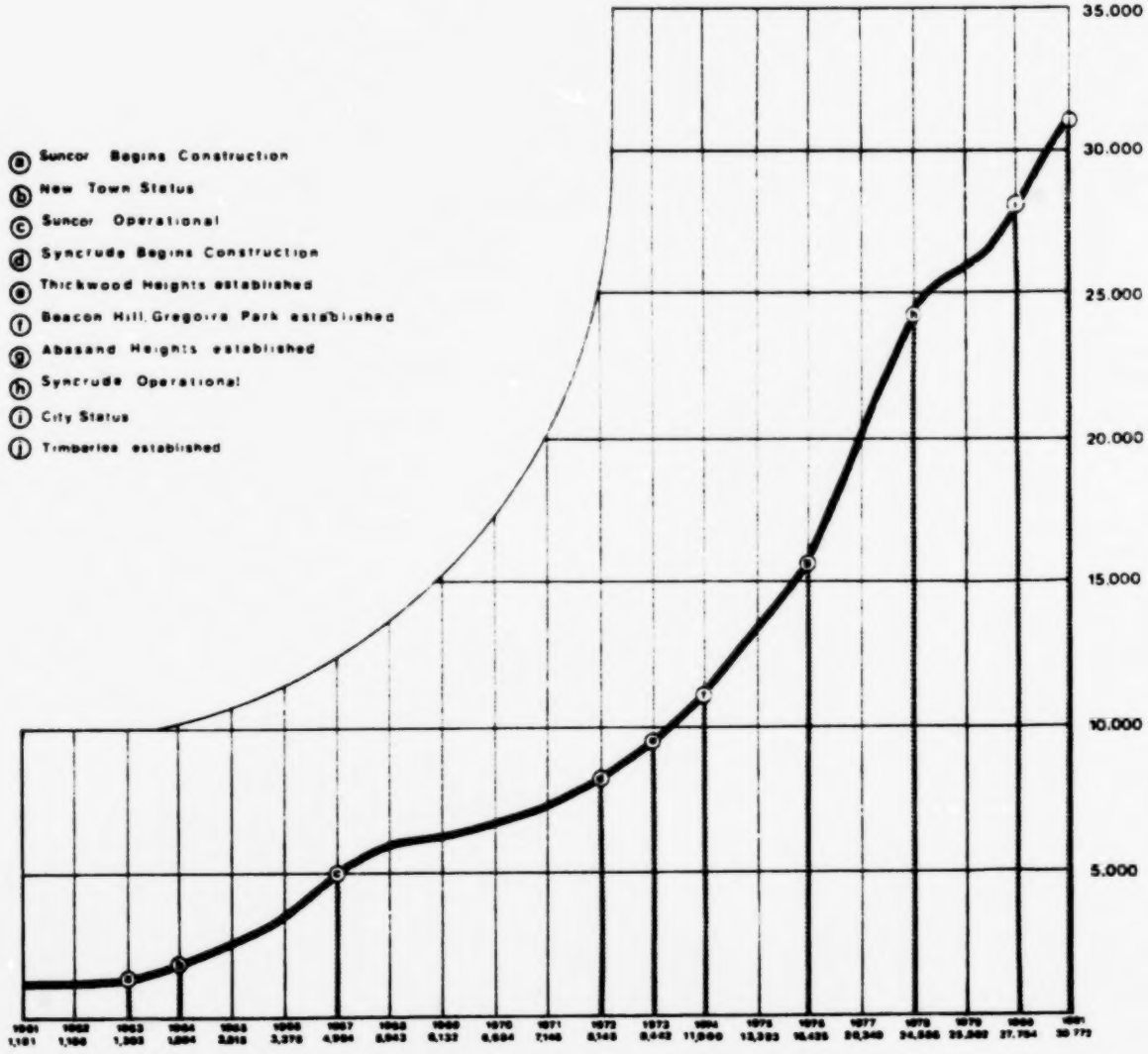
CFB itself had a 1976 population of about 5,500 with excellent facilites (golf course, hospital,4 schools, 1,255 married quarters) that made it a self contained community. The largest urban centre in the area, its recent growth rate had slowed, but its turnover rate of course remained relatively high. Residents averaged about 2.4 years in the area while others in the CLR averaged 21 years. The Base's highly selected population was young (average age of those interviewed was 30 versus 43 for the rest of the area), education levels were high (12.2

# Population*

POPULATION GROWTH

The official June, 1981 Census population of Fort McMurray is 30,772, an increase of 2,988 people since the 1980 Census. The most recent population growth figure for the Province of Alberta was for 1978 when the Provincial growth rate was 3.5%. Thus, Fort McMurray's growth rate of 10.75% was more than three times that of the Province as a whole. However, in comparison with the growth rates experienced during the periods of construction of the Suncor and Syncrude projects, Fort McMurray's growth rate has slowed considerably.

POPULATION GROWTH 1961 - 1981




* Taken from the 1981 Municipal Census of Fort McMurray

versus 10.5 years), and incomes were relatively low ($4,000 per year lower per household for 1978). The population did, however, enjoy many benefits, including subsidized housing.

About 10% of the CLR's rural population of around 6,000 lived in one village and two hamlets, while a further 20% was rural non-farm. As is generally the case, the rural population of the area had been declining steadily. Overall, it had little in-migration from outside the region, and incomes were low, particularly in the villages ($13,800 per household for 1978).

Fort McMurray is located about 450 Km north of Edmonton and had a 1981 population of just over 30,000. During the building of the first mine cum refinery, Suncor, from 1963 to 1968, it experienced growth rates which averaged 38.5% per year. During the construction of the second much larger plant, Syncurde, from 1973-1978, the average growth rate was 21.4% per year. This does not include workers housed in construction camps on the sites. By the time of our survey in 1979, mobile homes were down to 20% of the dwellings and 51% were housed in multiple family units (apartments, townhouses). The population was young (our adults averaged 30 years), and the town had few old people (.7% over 65). The sex ratio of 112 (males per 100 females) was similar to other northern communities, and the proportion of married adults (including common law) was about 75% (similar to that for Canada as a whole). Over one half of our 1979 sample of 430 adult respondents were relative newcomers with less than two years residence. About 46% of the labour force is employed at the Suncor or Syncrude sites north of town. Average household incomes recorded in our survey were high ($24,500 for 1978) and this average included recent migrants who had earned their incomes elsewhere (averaging $15,400). The cohort that had arrived just before

Table 1: Physical Symptoms and Doctor Visits

| Variable | Fort McMurray | Edmonton | Wpg. | Cold Lake | Grand Centre | CFB | Bonny-ville | CLR Villages | CLR Rural | Metis |
|---|---|---|---|---|---|---|---|---|---|---|
| | COMMUNITY | | | | | | | | | |
| 1. Physical Symptoms | 19.8 | ---- | ---- | 22.7 | 23.3 | 20.8 | 22.6 | 27.0 | 23.3 | 26.2 |
| Sex: Male | 17.0 | ---- | ---- | 18.0 | 20.8 | 18.3 | 25.5 | 21.1 | 20.9 | 25.4 |
| Female | 22.3 | ---- | ---- | 26.3 | 25.5 | 23.5 | 27.4 | 32.2 | 25.3 | 27.0 |
| Age: -30 | 21.0 | ---- | ---- | 23.6 | 25.4 | 22.2 | 24.5 | 27.8 | 23.4 | 23.1 |
| 30-44 | 17.6 | ---- | ---- | 19.6 | 21.7 | 19.4 | 25.9 | 30.8 | 22.2 | 21.3 |
| 44-64 | 20.1 | ---- | ---- | 25.9 | 23.5 | 20.1 | 25.9 | 28.8 | 23.3 | 29.7 |
| Res: -1 year | 17.9 | ---- | ---- | 21.0 | 25.4 | 29.7 | 24.7 | ---- | ---- | ---- |
| 1-5 years | 19.7 | ---- | ---- | 20.3 | 22.2 | 21.9 | 24.0 | ---- | 23.0 | ---- |
| 5-10 years | 23.7 | ---- | ---- | 15.6 | 25.6 | 18.7 | 21.2 | ---- | 19.3 | ---- |
| 10-20 years | 20.0 | ---- | ---- | 20.5 | 20.4 | ---- | 25.6 | ---- | 21.5 | ---- |
| 2. Doctor Visits | 7.6 | 4.6 | 7.6 | 5.1 | 4.0 | 5.0 | 6.7 | 3.6 | 3.7 | 7.1 |
| Sex: Male | 4.6 | 3.2 | 5.1 | 3.3 | 2.1 | 3.2 | 4.9 | 2.1 | 2.6 | 2.6 |
| Female | 10.2 | 5.9 | 7.3 | 6.5 | 5.6 | 7.1 | 7.7 | 4.9 | 4.6 | 12.0 |
| Age: -30 | 7.5 | 5.3 | 5.8 | 4.4 | 5.3 | 6.4 | 8.6 | 5.0 | 6.0 | 2.0 |
| 30-44 | 6.9 | 3.3 | 4.4 | 5.3 | 3.0 | 3.8 | 2.9 | 4.6 | 3.8 | 8.8 |
| 44-64 | 10.7 | 4.8 | 6.4 | 3.1 | 4.1 | 2.8 | 8.8 | 2.2 | 2.8 | 6.9 |
| Res: -1 year | 4.5 | 7.2 | 6.6 | 4.9 | 2.6 | 3.7 | 8.7 | ---- | | ---- |
| 1-5 years | 7.8 | 3.7 | 4.2 | 7.8 | 4.4 | 5.4 | 6.2 | ---- | 3.8 | ---- |
| 5-10 years | 9.8 | 4.9 | 5.6 | 2.6 | 4.5 | 5.0 | 3.9 | ---- | 6.0 | ---- |
| 10-20 years | 9.2 | 4.3 | 6.2 | 1.4 | 2.9 | ---- | 4.1 | ---- | 3.3 | ---- |

1978 earned an average of $28,000, over $10,000 above the contemporary figure.

Health Problem Self Reports and Doctor Visits

In the CLR and Fort McMurray samples, respondents reported frequency of experiencing 20 common physical symptoms (stomach pains, back pains, headaches, trouble sleeping). These were summed to form an overall scale ranging from 0 - 100 where zero indicated no symptoms reported and 100 indicated all symptoms reported with very high frequency. The results presented in Table 1 indicate that contrary to the hypothesis that rapid growth and high turnover produce health problems, the 430 residents of Fort McMurray averaged the lowest scores of all 10 populations. They were followed closely by the residents of CFB Cold Lake, another population with high turnover. On the other hand, the Fort McMurray sample averaged the highest number of visits to the doctor in the year previous to the survey. The second highest number of doctor visits was reported by the Metis Settlements.

To what degree are these differences a function of the population composition of the different communities? When rates were standardized by sex, females consistently reported more physical symptoms and a larger number of doctor visits. Yet Fort McMurray males and females still had the lowest physical symptom scores. The same pattern was obtained when results were standardized for age. Fort McMurray residents consistently had the lowest scores, and this held true, by and large, when results were standardized by migration cohort.

The standardized results for doctor visits showed that Fort McMurray males were no longer the highest, although only males in Winnipeg and Bonnyville had higher averages. For the females, only the Metis women had higher reported visits. Age standardized results showed that the

Table 2: Stress, Smoking and Drinking

| Variable | Fort McMurray | Edmonton | Wpg. | Cold Lake | Grand Centre | CFB | Bonny-ville | CLR Villages | CLR Rural | Metis |
|---|---|---|---|---|---|---|---|---|---|---|
| | COMMUNITY | | | | | | | | | |
| 1. Stress | 19.4 | 13.9 | 11.9 | 16.0 | 13.6 | 12.4 | 13.7 | 13.3 | 10.7 | 18.0 |
| Sex: Male | 19.5 | 14.7 | 13.3 | 15.5 | 12.8 | 11.8 | 14.1 | 14.0 | 10.5 | 17.0 |
| Female | 19.2 | 13.2 | 10.9 | 16.5 | 14.3 | 13.0 | 13.5 | 15.3 | 11.0 | 18.9 |
| Age: -30 | 23.6 | 21.2 | 20.4 | 23.7 | 22.1 | 15.3 | 20.2 | 18.8 | 17.8 | 25.0 |
| 30-44 | 16.0 | 11.6 | 11.0 | 15.8 | 10.6 | 10.0 | 11.8 | 18.1 | 9.5 | 21.6 |
| 45-64 | 13.9 | 9.2 | 6.9 | 8.8 | 9.7 | 6.2 | 12.6 | 10.3 | 9.2 | 11.2 |
| Res: -1 year | 24.9 | 23.4 | 23.3 | 25.7 | 27.5 | 17.1 | 23.0 | ---- | ---- | ---- |
| 1-5 years | 16.8 | 15.9 | 8.7 | 18.8 | 16.4 | 10.6 | 12.3 | ---- | 14.8 | ---- |
| 5-10 years | 15.2 | 12.7 | 16.2 | 16.7 | 9.2 | 9.4 | 9.6 | 11.2 | 9.5 | ---- |
| 10-20 years | 17.2 | 13.2 | 11.6 | 11.3 | 11.8 | ---- | 19.2 | ---- | 10.8 | ---- |
| 2. Smoke | | | | | | | | | | |
| Sex: Male | 63.6 | 46.6 | 42.3 | 57.9 | 48.4 | 50.0 | 51.5 | 48.3 | 41.4 | 73.9 |
| Female | 53.0 | 34.5 | 35.2 | 58.9 | 55.9 | 41.4 | 39.5 | 52.9 | 29.8 | 65.9 |
| Age: -30 | 64.8 | 42.5 | 46.5 | 64.6 | 51.6 | 45.4 | 52.0 | 73.7 | 52.4 | 65.0 |
| 30-44 | 50.3 | 44.6 | 41.9 | 61.1 | 55.7 | 47.9 | 54.4 | 42.1 | 55.2 | 81.3 |
| 45-64 | 57.5 | 40.0 | 31.7 | 62.1 | 50.9 | 20.0 | 46.3 | 42.9 | 32.9 | 72.4 |
| Res: -1 year | 63.8 | 49.1 | 53.7 | 64.7 | 46.7 | 44.7 | 40.9 | ---- | ---- | ---- |
| 1-5 years | 55.5 | 42.3 | 35.7 | 58.1 | 53.5 | 45.9 | 58.3 | ---- | 56.0 | ---- |
| 5-10 years | 56.0 | 36.5 | 33.3 | 72.2 | 61.0 | 46.2 | 64.7 | ---- | 23.8 | ---- |
| 10-20 years | 48.0 | 42.3 | 37.0 | 56.3 | 29.4 | ---- | 40.0 | ---- | 26.9 | ---- |
| 3. Drink | | | | | | | | | | |
| Sex: Male | 4.0 | ---- | ---- | 3.7 | 3.6 | 3.6 | 3.0 | 3.1 | 2.6 | 1.7 |
| Female | 2.6 | ---- | ---- | 2.7 | 2.7 | 2.7 | 2.4 | 1.9 | 2.2 | 1.2 |
| Age: -30 | 3.3 | ---- | ---- | 3.5 | 3.3 | 3.2 | 2.9 | 3.0 | 3.0 | 2.2 |
| 30-44 | 3.4 | ---- | ---- | 3.6 | 2.9 | 2.1 | 2.4 | 2.4 | 2.4 | 1.6 |
| 45-64 | 2.8 | ---- | ---- | 3.0 | 3.6 | 3.5 | 2.5 | 2.5 | 2.3 | 1.1 |
| Res: -1 year | 3.7 | ---- | ---- | 3.7 | 3.3 | 3.3 | 3.0 | ---- | ---- | ---- |
| 1-5 years | 3.1 | ---- | ---- | 3.4 | 3.3 | 3.1 | 2.0 | ---- | 2.9 | ---- |
| 5-10 years | 2.8 | ---- | ---- | 4.2 | 2.7 | 3.1 | 2.7 | 3.3 | 2.1 | ---- |
| 10-20 years | 2.7 | ---- | ---- | 3.2 | 3.7 | ---- | 2.3 | ---- | 2.4 | ---- |

Fort McMurray population age cohorts consistently had a higher number of doctor visits (except for the Metis aged 45-64). Controls for marital status, employment status, education and income showed similar results. However, when migration cohorts were compared, The newest arrivals (within the previous year) did not report relatively more frequent visits. The next three cohorts did, increasing from 4.5 to 7.8, 9.8 and 9.2 respectively. This tends to lend additional support to the conclusion that there is something about Fort McMurray itself that creates higher demand for medical services.

Interestingly, however, there is no evidence in these data to link the high rate of doctor visits to the oil industry itself. The only indicator we have is that respondents who worked for the oil companies averaged 4.3 visits while others averaged 8.2. If the respondent or his or her spouse worked for Syncrude or Suncor they averaged 5.2 visits compared to 9.1 for those who worked outside the core industry in the community. These results are the opposite from those we would expect if the oil industries themselves created the "problem".

Stress, Smoking and Drinking

The stress scale is a score between 0 and 100 based on a simple count of respondents' reports of the occurrance of major life events in the twelve months prior to the interview. The stress associated with moving to a boom town and adjusting to a new job is part of the conventional explanation for predicted high levels of distress in such communities (Wilkenson et al, 1982). Overall, Fort McMurray residents exhibited the highest stress scores (Table 2), just as the social distress theory would predict. These high scores did not appear to be a function of sex differences between the communities, but standardization

for age and length of residence both produced a number of comparisons where Fort McMurray's population had lower scores than those recorded in other communities. The presence of a high proportion of new migrants in Fort McMurray does appear to account for the high stress scores for that community. Indeed, new migrants had very high scores. Stress also appeared to be age related, with younger respondents indicating that they had experienced a greater number of stress events. Since Fort McMurray has a high proportion of young adults in addition to a high proportion of new migrants, this too accounts for the overall high stress scores.

Beyond its implications for health, smoking may be a nervous habit and so have further relevance to stress. A relatively high proportion of the residents of Fort McMurray smoked, although overall rates were similar in Cold Lake, and higher in the Metis Settlements. Again, the high rates in Fort McMurray appeared to be a result of a high proportion of smokers among young adults (65%) and recent migrants (64%). In other populations there were no consistent patterns. Neither the young nor recent migrants were particularly likely to have the highest proportion of smokers. Also, the communities with relatively low population stability (Edmonton, CFB, Grand Centre) showed no sign of the pattern observed in Fort McMurray.

Drinking may also be stress related, and it too may have implications for health problems. We had gathered only crude indicators of drinking behaviour by asking respondents how many occasions they had had at least one drink on. In this instance, Fort McMurray's high score is largely attributable to male drinking. To a somewhat lesser degree, it is also attributable to more frequent drinking by those who had been residents of Fort McMurray less than one year. Age differences were

Table 3: Psychological Well-Being and Satisfaction

| Variable | Fort McMurray | Edmonton | Wpg. | Cold Lake | Grand Centre | CFB | Bonny-ville | CLR Villages | CLR Rural | Metis |
|---|---|---|---|---|---|---|---|---|---|---|
| | COMMUNITY | | | | | | | | | |
| 1. Positive | 58.9 | 57.5 | 52.2 | 59.8 | 59.8 | 60.7 | 58.6 | 56.7 | 59.9 | 52.2 |
| Sex: Male | 59.7 | 56.1 | 58.2 | 59.4 | 61.9 | 59.4 | 58.3 | 55.9 | 57.4 | 51.5 |
| Female | 58.3 | 59.0 | 55.1 | 60.2 | 58.0 | 62.2 | 58.8 | 57.3 | 61.8 | 53.0 |
| Age: -30 | 60.6 | 64.0 | 57.0 | 57.8 | 60.3 | 60.5 | 60.8 | 57.2 | 69.4 | 60.0 |
| 30-44 | 56.8 | 56.6 | 59.6 | 65.5 | 59.6 | 61.0 | 61.1 | 62.7 | 57.3 | 50.0 |
| 45-64 | 59.9 | 50.9 | 54.8 | 60.9 | 60.2 | 58.3 | 57.3 | 57.1 | 61.3 | 50.0 |
| Res: -1 year | 58.6 | 63.8 | 57.1 | 63.2 | 65.6 | 59.1 | 58.0 | ---- | ---- | ---- |
| 1-5 years | 59.1 | 58.6 | 55.5 | 57.5 | 61.1 | 61.4 | 61.3 | ---- | 66.3 | ---- |
| 5-10 years | 57.8 | 57.2 | 54.9 | 67.1 | 58.8 | 59.9 | 59.8 | ---- | 61.5 | ---- |
| 10-20 years | 61.5 | 55.9 | 55.2 | 59.9 | 60.8 | ---- | 57.8 | ---- | 67.0 | ---- |
| 2. Negative | 30.9 | 30.0 | 29.7 | 26.2 | 29.7 | 32.4 | 28.3 | 31.8 | 24.5 | 40.0 |
| Sex: Male | 29.1 | 30.4 | 29.4 | 25.4 | 29.2 | 31.0 | 29.3 | 30.0 | 23.7 | 37.1 |
| Female | 32.3 | 29.6 | 29.8 | 26.9 | 30.1 | 34.0 | 27.7 | 33.2 | 25.2 | 42.8 |
| Age: -30 | 33.4 | 34.5 | 39.5 | 32.9 | 34.3 | 37.2 | 31.0 | 42.7 | 28.4 | 41.5 |
| 30-44 | 29.2 | 31.7 | 29.1 | 26.0 | 28.2 | 28.6 | 30.2 | 33.4 | 22.9 | 38.6 |
| 45-64 | 24.1 | 24.6 | 24.4 | 21.4 | 27.6 | 21.8 | 26.3 | 28.1 | 24.3 | 40.9 |
| Res: -1 year | 30.8 | 35.5 | 36.3 | 29.7 | 32.0 | 32.1 | 32.5 | ---- | ---- | ---- |
| 1-5 years | 29.4 | 31.1 | 28.7 | 26.5 | 30.2 | 34.5 | 29.7 | ---- | 25.0 | ---- |
| 5-10 years | 35.8 | 30.5 | 34.3 | 27.5 | 30.1 | 26.2 | 27.4 | ---- | 21.9 | ---- |
| 10-20 years | 31.5 | 30.7 | 28.2 | 26.9 | 29.4 | ---- | 29.0 | ---- | 25.0 | ---- |
| 3. Satisfaction | 77.1 | 78.7 | 79.2 | 78.3 | 77.5 | 73.0 | 78.8 | 78.6 | 83.3 | 72.0 |
| Sex: Male | 75.8 | 77.8 | 78.0 | 76.6 | 76.9 | 70.5 | 79.1 | 79.6 | 82.9 | 69.9 |
| Female | 78.1 | 79.5 | 80.0 | 79.6 | 78.1 | 75.7 | 78.7 | 77.8 | 83.7 | 74.8 |
| Age: -30 | 76.3 | 76.8 | 77.0 | 73.9 | 75.3 | 70.0 | 71.3 | 76.0 | 81.4 | 76.3 |
| 30-44 | 76.7 | 78.0 | 77.7 | 78.6 | 76.2 | 75.4 | 79.9 | 80.2 | 81.6 | 70.8 |
| 45-64 | 82.3 | 80.8 | 81.1 | 82.4 | 80.1 | 77.9 | 84.2 | 80.6 | 86.4 | 68.0 |
| Res: -1 year | 76.4 | 74.8 | 77.0 | 74.4 | 72.3 | 72.1 | 72.1 | ---- | ---- | ---- |
| 1-5 years | 77.3 | 78.6 | 80.4 | 76.6 | 76.1 | 72.5 | 76.5 | ---- | 78.7 | ---- |
| 5-10 years | 77.2 | 78.1 | 78.0 | 78.0 | 75.5 | 79.5 | 73.7 | ---- | 82.8 | ---- |
| 10-20 years | 78.6 | 77.1 | 80.5 | 81.0 | 81.0 | ---- | 77.6 | ---- | 84.9 | ---- |

small and the young did not always report drinking more often.

Stress itself was positively but only weakly related to reports of physical symptoms for all 10 populations. There was a stronger positive effect of stress on doctor visits, although only the high stress group in Fort McMurray reported more visits. Smoking was more stongly stress related in most communities, with 69% of high stress respondents reporting that they smoked in Fort McMurray compared to 40% of low stress respondents. In most communities, higher levels of stress were not associated with more frequent drinking. But in Fort McMurray, and in the Metis Settlements and in the whole rural area of the CLR,higher levels of stress were associated with reports of more frequent drinking. Finally, there was little evidence to link stress, smoking,or drinking with employment with the oil companies in Fort McMurray. Indeed, those who worked for Syncrude or Suncor or had spouses who did so were a little less likely to smoke, reported marginally lower stress events, and drank somewhat less frequently.

Psychological Affect and Satisfaction

Subjects' psychological well-being was indexed using Bradburn's (1969) negative and positive mood scales (how often in the past few weeks people had felt lonely, remote, excited, interested, depressed, very unhappy, pleased, bored, angry, and upset). Scores were again standardized to range from 0 to 100. Results in Table 3 show that Fort McMurray residents did not report having experienced lower positive or higher negative affect. Winnipeg and the Metis reported the lowest positive affect and residents of CFB reported the highest scores. Interestingly, they also reported a relatively high incidence of negative affect as well, although the Metis clearly score higher than any other group.

Neither male nor female respondents from Fort McMurray had extreme scores on either of the affect scales. Sex differences were generally small, with women tending to report slightly less positive affect and slightly more negative affect. Standardization for age and length of residence in the community also failed to reveal extreme scores for Fort McMurray residents. Generally, there was little evidence that affect scores deteriorated with longer residence in a boom town. However, considerable caution should be exercised in interpreting these results, since affect measures did not appear to be sensitive to differences within communities or between them.

Satisfaction with various aspects of the quality of life (work, non-work, family, friendships, neighborhood, housing, standard of living) was measured in all surveys using seven point (very satisfied to very dissatisfied) scales. These were summed and scores standardized to range between 0 and 100. Generally, people report high satisfaction with their quality of life, but Fort McMurray residents reported the lowest scores for all communities except the Metis and CFB. After standardization for demographic differences, Fort McMurray residents who were male, young and recent migrants reported the lowest satisfaction. Again, the relatively high proportion of males and young adults accounts in part for the somewhat low score overall for the Fort McMurray sample. Similar patterns for age and sex were exhibited by residents of the communities of CFB, but older Metis reported lower satisfaction.

The systematic differences across migration cohorts were exactly the opposite as those predicted by the social disruption theory. The long term residents with longer exposure to the community were not less satisfied. However, caution should be exercised in interpreting these (and other results), since the dissatisfied may simply have left

in larger numbers than the satisfied. It was also difficult to connect differences in satisfaction to the oil companies themselves. Those who worked for them reported a slightly lower incidence of positive affect, somewhat lower negative affect, and higher satisfaction scores. None of these differences were large.

A more detailed comparison of Fort McMurray and Edmonton residents showed non-significant differences in affect scores. In both populations, about 30% of the sample reported feeling lonely, remote, depressed or very unhappy at least sometimes, and 45% reported at least sometimes feeling bored. The lowest satisfaction scores were for neighbourhoods in Fort McMurray (averaging 65 out of 100), and this was lower than in Edmonton. Satisfaction with non-work activities was also lower in Fort McMurray (service problems, low variety in entertainment), but residents of Fort McMurray were just as happy with their family life (Krahn et al, 1981) and more satisfied with friendships and standards of living.

Conclusions

I have argued that if there is to be support for the notion that rapid growth and high population instability creates higher rates of social and personal problems, then residents of Fort McMurray should report more physical symptoms, a greater number of doctor visits, greater stress, higher incidence of smoking and drinking, poorer affect and lower satisfaction with the quality of life. Standardization for sex, age, and migration status shows whether the observed differences between communities were a result of differences in demographic composition associated with rapid growth or high population instability. Results of comparisons of Fort McMurray residents with nine other diverse population groups (rural, small town, villages, cities, an air force base and two Metis Settlements) showed that residents of this

boom town had the lowest physical symptom self reports of all 10 populations. These results were still present when age, sex and migration cohort differences were taken into account. If anything, health problems would appear to be lower in this high growth and rapid turnover community.

Self reports of doctor visits did show the high rates for Fort McMurray predicted by the social disruption thesis. Even though symptom rates were low, doctor visits had been high. Although some of this difference appeared to be a product of sex differences, the high sex ratio in Fort McMurray would tend to create lower overall scores, since women reported many more visits than men. Differences between Fort McMurray residents and other populations remained when results were age standardized, and migration cohort differences indicated that longer residence was associated with higher doctor visits. New arrivals in Fort McMurray reported far fewer doctor visits than those who had been there for some time. If the frequency of doctor visits can be used to indicate the presence of problems, then the boom town of Fort McMurray appeared to have an increased incidence of health problems despite reporting fewer symptoms of ill health.

Fort McMurray residents reported having experienced a higher incidence of life stress events than other populations, and this appeared to be a function of age and length of residence. The young and those who had migrated within the year previous to the surveys reported high stress. Adults in Fort McMurray also reported a high incidence of smoking, and again this appeared to be a consequence of the demographic composition of the community. Young adults and recent migrants to Fort McMurray reported high incidence of smoking, a pattern that was not repeated in other populations with any consistency. Fort McMurray's high indicence of reported drinking was largely attributable to high male scores and

more frequent drinking by new migrants to Fort McMurray.

There was little evidence of between community differences in measures of positive and negative affect, and standardization did not alter this conclusion. There was no evidence that Fort McMurray residents were negatively affected by rapid growth or that psychological well-being deteriorated with longer residence in the community. Fort McMurray residents did, however, report the lowest satisfaction scores and this appeared to be partially attributable to the high proportions of males, young adults and recent migrants in the population. There was some evidence that boom towns may create lower satisfaction with the quality of life that is related to their demographic composition. However, there was no evidence of deterioration of satisfaction scores with longer residence in the community.

These initial findings suggest that many of the differences between boom towns and other communities are at least in part a consequence of the demographic composition of centres of rapid growth. However, the occurance of lower physical symptom level (reports) in conjunction with a higher rate of doctor visits clearly merits further research attention. These results do not appear to be a consequence of differences in demographic composition. It should be pointed out too, that there was no evidence to link greater health problems to the oil companies themselves. Indeed, oil company employees reported fewer doctor visits and almost no differences in physical symptoms. This same pattern of results was observed for stress, smoking and drinking. If anything, employees of Syncrude and Suncor (and their spouses) reported lower rates of "problematic" behaviours and showed no evidence of psychological difficulties or deterioration in the quality of life. Further research is necessary to convincingly rule out any connection between the developments themselves

and high incidence of social and psychological problems, but there was little evidence in our results to suggest that employment with the core industry in the boom town community was in any way associated with ill effects.

A number of other caveates should be noted. The measures presented in this report were often less than optimal, and we should improve them with experience. Furthermore, even a series of cross-sectional studies at one point in time may produce results that are a consequence (in part) of differential out-migration. Since these surveys interview only stayers, it is possible that the people with a high incidence of physical difficulties or those with few doctor visits are more likely to leave. For example, if the people who are very dissatisfied with the quality of life in Fort McMurray are more likely to leave sooner, they take the negative impact of the boom town with them, so to speak. Those that are left (stayers) show an inflated rate of satisfaction compared to all those exposed to the conditions. Panel studies of residents, both stayers and movers, would be necessary in order to address these issues. We are planning such a follow-up of the Fort McMurray sample early next year.

Finally, the results which we have obtained are most surely a product of the particular timing of the surveys that we have done. 1979 was a fairly good year in Fort McMurray. The construction of Syncrude was completed and the construction camp at the job site was down to a fraction of its peak of 7,000 workers. Comparisons of boom towns to communities a different points in their development give us some perspective on these methodological limitations, but we also need longitudinal investigations of the effects of rapid growth that follow communities through all stages of their development.

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